Appl. No. 10/750,064
Response Dated May 15, 2007
Reply to Office Action of February 15, 2007

Docket No.: 1020.P16742
Examiner: File, Erin M.
TC/A.U. 2611

REMARKS

Summary

Claims 1-6, 9-16 and 18 stand in this application. Claims 7, 8 and 17 have been canceled without prejudice. Claims 1, 11, 15, 16 and 18 have been amended. No new matter has been added. Favorable reconsideration and allowance of the standing claims are respectfully requested.

Although Applicant disagrees with the broad grounds of rejection set forth in the Office Action, Applicant has amended claims 1, 11, 15, 16 and 18 in order to facilitate prosecution on the merits.

35 U.S.C. § 112

Claim 2 has been rejected under 35 U.S.C. § 112 for not particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. Applicant respectfully traverses the rejection and requests reconsideration and withdraw of the § 112 rejection. The Office Action states that "Claim 2 recites a limitation to provide time domain averaging and frequency domain averaging on one or more received channel estimates, however, Claim 1 recites the channel estimates are determined by averaging over the time domain and frequency domain." Applicant respectfully submits that time domain averaging and frequency domain averaging in claim 1 is done on one or more received inputs to provide an averaged channel estimate. In claim 2, time domain averaging and frequency domain averaging is done on one or more received channel estimates to provide an averaged channel estimate. In both claims 1 and 2, Applicant respectfully submits that an averaged channel estimate is provided by performing time

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domain averaging and frequency domain averaging. As such, Applicant respectfully

submits that the language of claims 1 and 2 is sufficiently clear and withdraw of the §

112 rejection is respectfully requested.

35 U.S.C. § 102

At page 2, paragraph 2 of the Office Action claims 1-3, 7, 9 and 10 stand rejected

under 35 U.S.C. § 102 as being anticipated by United States Patent Publication Number

2005/0152314 to Sun et al. ("Sun"). Applicant respectfully traverses the rejection, and

requests reconsideration and withdrawal of the anticipation rejection.

Applicant respectfully submits that to anticipate a claim under 35 U.S.C. § 102,

the cited reference must teach every element of the claim. *See* MPEP § 2131, for

example. Applicant submits that Sun fails to teach each and every element recited in

claims 1-3, 7, 9 and 10 and thus they define over Sun. For example, with respect to

amended independent claim 1, Sun fails to teach, among other things, the following

language:

> a coarse channel estimator to generate a coarse channel
> estimate to be input to the averaging circuit, the coarse
> channel estimator adapted to generate a coarse channel
> estimate as the received symbol divided by a replica of a
> transmitted symbol, per subcarrier.

As correctly noted in the Office Action on page 5, Sun fails to teach the above recited

language.

Applicant respectfully submits that the above recited language was previously

recited in dependent claims 7 and 8, which have been canceled and their subject matter

has been incorporated into independent claim 1. Consequently, Sun fails to disclose all

the elements or features of the claimed subject matter. Accordingly, Applicant

respectfully requests removal of the anticipation rejection with respect to claim 1.

Furthermore, Applicant respectfully requests withdrawal of the anticipation rejection with

respect to claims 2, 3, 9 and 10, which depend from claim 1 and, therefore, contain

additional features that further distinguish these claims from Sun.

35 U.S.C. § 103

At page 3, paragraph 4 of the Office Action claim 4 stands rejected under 35

U.S.C. § 103(a) as being unpatentable over Sun in view of United States Patent

Publication Number 2004/0125235 to Kim et al. ("Kim"). At page 4, paragraph 5 of the

Office Action claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable

over Sun in view of United States Patent Publication Number 2004/0142665 to

Papathanasion ("Papathanasion"). At page 4, paragraph 6 of the Office Action claim 6

stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of

United States Patent Number 6,757,272 to Abeta et al. ("Abeta"). At page 5, paragraph 7

of the Office Action claim 8 stands rejected under 35 U.S.C. § 103(a) as being

unpatentable over Sun in view of United States Patent Publication Number 2001/0110184

to Akopian et al ("Akopian"). At page 6, paragraph 8 of the Office Action claims 11-14

stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of

Akopian. At page 7, paragraph 9 of the Office Action claims 15 and 16 stand rejected

under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Kim. At page 8,

paragraph 10 of the Office Action claim 17 stands rejected under 35 U.S.C. § 103(a) as

being unpatentable over Sun and Kim in view Akopian. At page , paragraph 11 of the

Office Action claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable

over Kim in view of Sun. Applicant respectfully traverses the rejections, and requests

reconsideration and withdrawal of the obviousness rejections.

Applicant has cancelled claims 7, 8 and 17 and has incorporated their subject

matter into amended independent claims 1, 11, 15 and 18 respectively. Therefore, the

obviousness rejection with respect to claims 7, 8 and 17 will be addressed below with

respect to amended independent claims 1, 11, 15 and 18.

The Office Action has failed to meet its burden of establishing a *prima facie* case

of obviousness. According to MPEP § 2143, three basic criteria must be met to establish

a *prima facie* case of obviousness. First, there must be some suggestion or motivation,

either in the references themselves or in the knowledge generally available to one of

ordinary skill in the art, to modify the reference or to combine reference teachings.

Second, there must be a reasonable expectation of success. Finally, the reference (or

references when combined) must teach or suggest all the claim limitations. The teaching

or suggestion to make the claimed combination and the reasonable expectation of success

must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,*

947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 706.02(j).

As recited above, to form a *prima facie* case of obviousness under 35 U.S.C §

103(a) the cited references, when combined, must teach or suggest every element of the

claim. *See* MPEP § 2143.03, for example. Applicant respectfully submits that the Office

Action has not established a *prima facie* case of obviousness because the cited references,

taken alone or in combination, fail to teach or suggest every element recited in claims 1,

4-6, 11-16 and 18. Therefore claims 1, 4-6, 11-16 and 18 define over the cited references

whether taken alone or in combination. For example, claim 1 has been amended to recite

the following language, in relevant part:

> a coarse channel estimator to generate a coarse channel
> estimate to be input to the averaging circuit, the coarse
> channel estimator adapted to generate a coarse channel
> estimate as the received symbol divided by a replica of a
> transmitted symbol, per subcarrier.

As correctly noted in the Office Action at page 5, the above-recited language is not

disclosed by Sun. According to the Office Action, the missing language is disclosed by

Akopian at paragraph [0043] and figure 1A. Applicant respectfully disagrees.

Applicant respectfully submits that Akopian fails to teach, suggest or disclose the

missing language. Akopian at the given cite, in relevant part, states:

> the fine acquisition module 16 is shown as including a
> correlator 12 and a fine acquisition kernel 11. The
> correlator 12 is typically a conventional correlator, of the
> type that would be used in a tracking module…. Using the
> coarse estimate w_0 of the carrier frequency and a value for
> the phase to be used for the replica code, the correlator
> wipes off the code component of the received signal $x(t)$
> and also performs a partial demodulation of the received
> signal $x(t)$, based on the coarse estimate w_0 of the carrier
> frequency, so as to partially remove the carrier. The output
> of the correlator 12 is therefore the navigation data
> corrupted by noise and modulated by the remaining
> frequency shift.

By way of contrast, the claimed subject matter teaches "a coarse channel estimator to

generate a coarse channel estimate to be input to the averaging circuit, the coarse channel

estimator adapted to generate a coarse channel estimate as the received symbol divided

by a replica of a transmitted symbol, per subcarrier." Applicant respectfully submits that

this is different than the above recited teaching of Akopian.

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Applicant respectfully submits that Akopian, arguably, teaches a correlator that uses a coarse estimate of the carrier frequency and a value for the phase to be used for the replica code to wipe off the code component of the received signal and perform a demodulation of the received signal to partially remove the carrier. Applicant respectfully submits that this is different than the above recited language of claim 1. Applicant respectfully submits that he has been unable to locate at least "the coarse channel estimator adapted to generate a coarse channel estimate as the received symbol divided by a replica of a transmitted symbol," as recited in claim 1, in the teaching of Akopian.

Applicant respectfully submits that Akopian fails to even mention dividing a received symbol by a replica of a transmitted symbol to generate a coarse channel estimate. Therefore, Akopian fails to disclose, teach or suggest the missing language. Applicant respectfully submits that the Office Action relies on Akopian to teach the above recited language, which in part has been incorporated into each of the independent claims. Furthermore, Applicant respectfully submits that Sun, Kim, Papathanasion and Abeta also fail to teach the missing language. Consequently, the cited references, whether taken alone or in combination, fail to disclose, teach or suggest every element recited in claim 1.

Furthermore, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. *See* MPEP § 2143.03, for example. Accordingly, removal of the obviousness rejection with respect to claim 1 is respectfully requested. Claims 4-6 also are non-obvious and patentable over cited references, taken alone or in combination, at least on the basis of their dependency from claim 1.

Applicant, therefore, respectfully requests the removal of the obviousness rejection with respect to these dependent claims.

Independent claims 11, 15 and 18 have been amended to recite features similar to those recited in claim 1. Therefore, Applicant respectfully submits that claims 11, 15 and 18 are not obvious and are patentable over the cited references, taken alone or in combination, for reasons analogous to those presented with respect to claim 1 above. Accordingly, Applicant respectfully requests removal of the obviousness rejection with respect to claims 11, 15 and 18. Furthermore, Applicant respectfully requests withdrawal of the obviousness rejection with respect to claims 12-14 and 16 that depend from claims 11 and 15 respectively, and therefore contain additional features that further distinguish these claims from the cited references.

For at least the reasons given above, claims 1, 4-6, 11-16 and 18 are non-obvious and represent patentable subject matter in view of the cited references, whether taken alone or in combination. Accordingly, removal of the obviousness rejections with respect to claims 1, 4-6, 11-16 and 18 is respectfully requested. Further, Applicant submits that the above-recited novel features provide new and unexpected results not recognized by the cited references. Accordingly, Applicant submits that the claims are not anticipated nor rendered obvious in view of the cited references.

Applicant does not otherwise concede, however, the correctness of the Office Action's rejection with respect to any of the dependent claims discussed above. Accordingly, Applicant hereby reserves the right to make additional arguments as may be necessary to further distinguish the dependent claims from the cited references, taken alone or in combination, based on additional features contained in the dependent claims
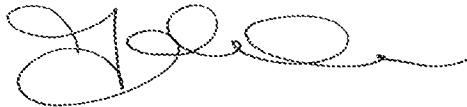
that were not discussed above. A detailed discussion of these differences is believed to

be unnecessary at this time in view of the basic differences in the independent claims

pointed out above.

It is believed that claims 1-6, 9-16 and 18 are in allowable form. Accordingly, a

timely Notice of Allowance to this effect is earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if

such contact would further the examination of the present patent application.

Respectfully submitted,

KACVINSKY LLC

John F. Kacvinsky, Reg. No. 40,040
Under 37 CFR 1.34(a)

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